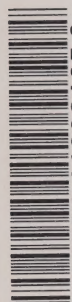


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Vol. V.

No. 6

THE BULLETIN

Hydro-Electric Power
Commission of Ontario
JUNE
1919



Birdseye View of NIAGARA FALLS

THE BULLETIN

PUBLISHED MONTHLY BY THE

**Hydro-Electric Power
Commission of Ontario**

ADMINISTRATION BUILDING
190 UNIVERSITY AVE.
TORONTO



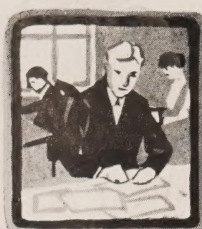
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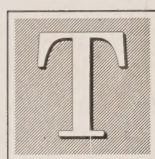
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Editorial

The Johnson Paper



THE letter we are reproducing in this issue of THE BULLETIN from Mr. George Wright, Commissioner of the Toronto Hydro-Electric System, should be of great interest to all of our readers. The Johnson paper brought out some extremely valuable discussion at the last convention of the A.M.E.E., and Mr. Wright's viewpoint is of particular interest, in that he coincides with the Hydro-Electric Power Commission is maintaining that it is a manifest responsibility on our part to do all in our power to bring the people of Ontario to a full realization of the benefits of electric service.

This aim falls short of accomplishment, if we do not lay particular stress on electricity as a servant in the home. Until every housewife is fully acquainted with the wonderful advantages of "doing it electrically" we have not attained our goal. Let us strive in every way possible to en-

courage demonstrations and also energetically back up the organized publicity of the Commission.

We all have a common object—to popularize the use of electricity—not for gain, but for the furtherance of those principles for which the municipalities of Ontario banded themselves together.

Our Province to-day leads the world in electrical progress. There is probably no place where electricity is more generally used for all purposes. But this is not enough. We must put electricity, if possible, in every home and manufacturing plant in Ontario—and then, instead of letting it go at that, we must still go further, and through educational methods show the people of the province how much time, labor and money can be saved by using Hydro to the fullest possible extent.

To do this requires co-operation, enthusiasm and a real, earnest desire to be instrumental in raising the standards of living in our Province.





Technical Section



Something About Conduit Services

By H. F. Strickland

Chief Electrical Inspector, Hydro-Electric Power Commission.

THE use of conduit services in buildings in Toronto and practically throughout Ontario was introduced originally between eleven and twelve years ago. This method was suggested and adopted almost concurrently in many of the American inspection districts.

This method of construction was adopted with the idea of, first of all, bringing meters and meterboards down from the bedrooms, bathrooms and attics of houses to the basements, where they would be more easily reached by meter readers, and obviate the necessity of tramping up and down stairs with muddy boots, or the embarrassment to the lady of the house upon finding a meter reader unceremoniously entering the bedroom or bathroom in the early morning before her ladyship was properly attired or had completed her facial decoration. It is true there was a

certain amount of fire hazard, but this was not to be compared with the disconcerting effect of finding her ladyship dishabile, to say nothing of finding mud streaks on the oak stairs or up and down the hall.

Another trouble which presented itself was the fact that very often a meter reader was not permitted to ascend to the bedroom floor of a residence until the occupants were all about for the day, and many trips were made and much time expended for nothing. Another serious objection was the placing of this meter equipment in attics, often in clothes-closets, frequently in bathrooms, and just as often behind piles of rubbish in unused garrets, where the meters were frequently subjected to collisions with the family trunk. Finally, it would be possible with the meterboard in the basement of a house to quickly cut off the building in case of fire or other emergency. It was also a very difficult matter to bring



Figure 1.

Showing remains of a big conduit service in pre-inspection days.

the service wires into many of these points, requiring extension ladders and the smashing of holes through the walls of the house, which was often done in a clumsy and unworkmanlike manner, in order to bring the wires into the meterboard. These wires, where they passed through the brick wall, were supposed to be protected with porcelain tubes. The class of work which was performed in those days was not under supervision over the entire Province, with the result that drip loops were generally conspicuous by their absence, and the rain frequently ran right along the wires into the switches and cutouts, further increasing the fire hazard, so that, taking everything into consideration, it was considered a very wise move.

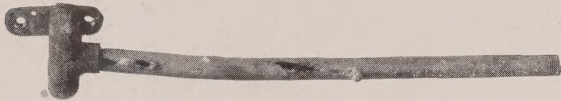


Figure 2

With the object of removing all these objections, the service pipe method was promulgated, and, although it was some time before the regulation was actually adopted by the Underwriters, who at that time carried on inspection, it nevertheless became an adopted regulation of the Code and subsequently of the Commission, although the regulations of the Commission are much more comprehensive and go more fully into the details of construction. The introduction of the service pipe, however, in the early days was not without its troubles, as the illustrations in this article will bear out,

A typical burn-out is illustrated in Figure 1. A glance at this

cut will immediately convey to the reader the intensity of the burn-out. Upon careful investigation of this accident, it was discovered that a short-circuit developed in the pipe owing to the wireman having concealed a joint inside the conduit. Of course, accidents of this kind will happen if people leave joints in pipe, and it is only a careless and irresponsible wireman who would attempt to do such a thing, and, furthermore, it is a very difficult thing to detect, and unless an inspector happens to see these wires pulled in the conduit, or, being suspicious, would require them pulled out (which is sometimes done), the defect would never be noticed.

The three wires drawn through the window in this illustration were a temporary expedient adopted until new wires could be installed. Fortunately this fire was confined to the service pipe, and had it not been that the employees were right there and quickly extinguished the blaze, or had it happened during the night, the factory would have been totally destroyed or very badly damaged.

Figure 2 is another case of a service burn-out in a factory in Toronto about four years ago. The loss resulting from this burn-out amounted to some ten thousand dollars. At that time the Inspection Department was not organized as it is now, and the contractor would have been checked upon this job under the permit system now in force.

Figure 3 shows a bad burn-out which took place in Toronto about a year ago, involving a loss of about

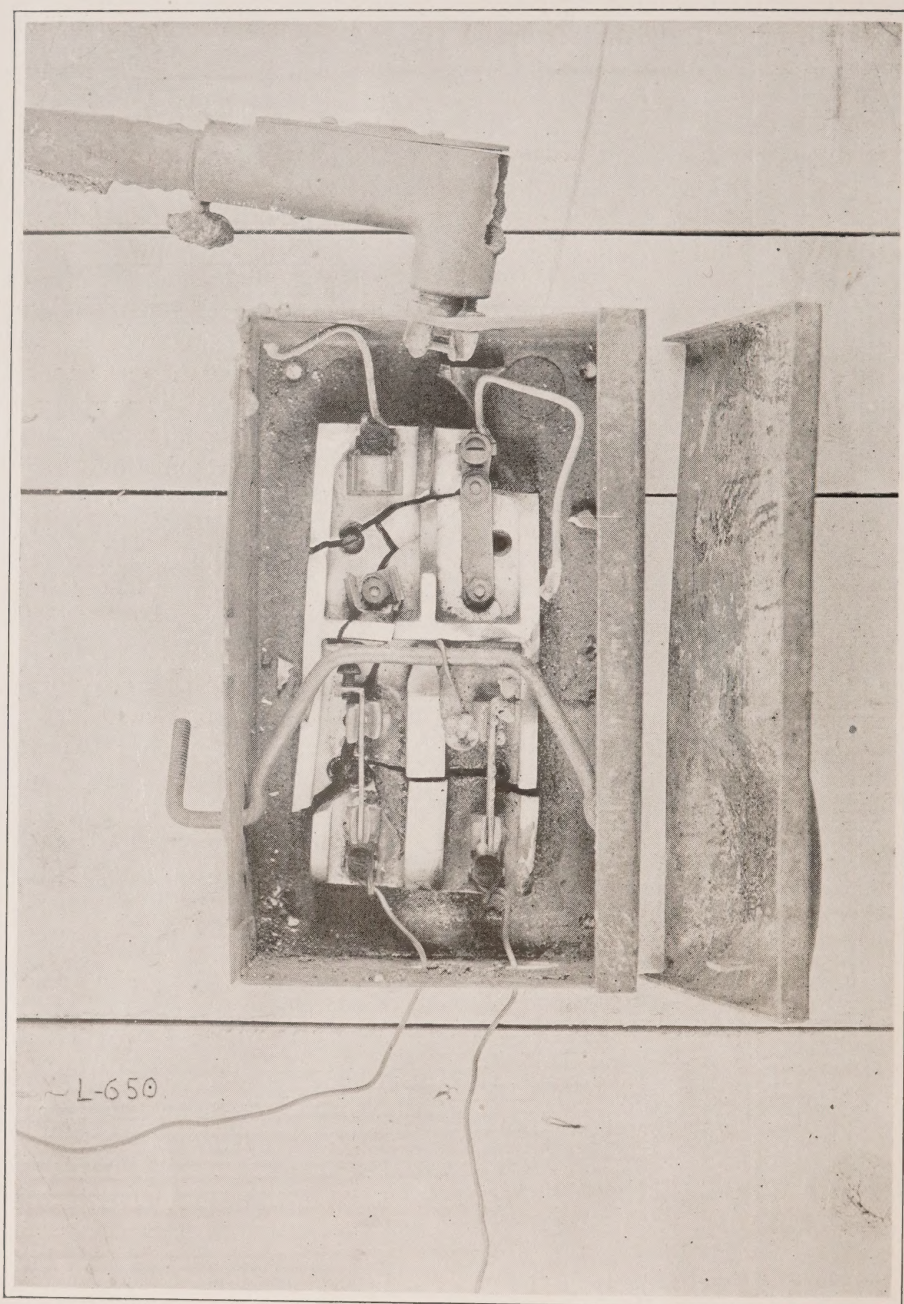


Figure 3

fifteen hundred dollars. So intense was the heat from the burn-out in this conduit that the woodwork and surroundings were set on fire, and the flames spread so rapidly that the damage was incurred before the fire department could reach the premises, although it was within a block of a large fire station.

Figure 4 shows a section of conduit removed from a building which was totally destroyed by fire about five years ago. The loss involved in this fire approximated forty thousand dollars. This, of course, does not sound very good for conduit service pipes, but we must not lose sight of the fact that no trace has been kept of the thousands of dollars of loss, not only from the inconvenience of fire, loss and damage from the old overhead services, to say nothing of the danger to life and persons incurred from the old open switches, which were placed in such dangerous positions, and which, if they were permitted to be used in the same ratio as the increase in use of current, would have run up a large toll in damage by this time.

The conclusion, however, to be drawn from these references should be of considerable interest. In the first place, it is to be noted that in every case the service pipes which burned out were provided with old code wire and not with new code wire, which has always been required by the Commission's regulations. In only one case was one of these installations performed since the Commission first took over inspection, and that was the fire illustrated in

Figure 1, and even at that time the Commission's regulations had not been generally adopted as they are now, and, furthermore, in this particular instance the best class of wire known would not have prevented the accident, owing to the fact that it was caused by a concealed joint in the conductors.

In all other cases, however, it was found that the accidents were due to the use of old code wire, so that it is

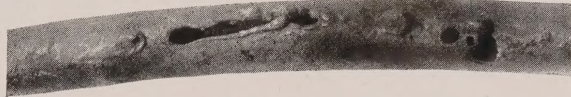


Figure 4

only reasonable and fair to assume that had the Commission's regulations been carried out or had these installations been effected during the last year or two, that these fires would not have occurred.

Color is lent to this assumption by the fact that we have not up to the present time any record of one single burn-out in a service where new code wire has been used and the work has been otherwise installed in accordance with the Commission's rules and regulations. The lesson, therefore, to be gained from this article is that the utmost care should be exercised in drawing in service conductors, and the insulation employed in service work cannot be too good, as, unlike inside wiring, the wires have little or no protection to fall back on.

Some suggestions have been made to introduce the use of rubber-covered wire in conduit where a potential of 2,200 volts is involved. Such work is not permitted by any inspection department on this continent, and supply authorities and

others should be very cautious in adopting this class of construction. The rules and regulations of the Commission require lead cable in all cases where conductors are to be drawn in service conduits, and, while 550-volt services may be drawn directly into conduit pipes, it is only adding further insurance to adopt lead cable even at that voltage, so that, whatever may be said or done, one thing is certain, and that is—that it behoves the owners of factories and buildings to make sure that their service equipment is well and safely in-

stalled and that only the best form of construction is adopted, and, even if it may cost a little more, it is better to spend the difference on the service, as it is undoubtedly the most dangerous part of an ordinary installation, at least with regard to fire.

If, however, the service is installed, tested and carefully examined and carried out in accordance with the Commission's rules and regulations, there is no safer method, commensurate with expense, of leading in aerial service wires which can be applied to general use.



Interior view of the Hydro Shop, Tillsonburg

Some Unapproved Electrical Devices



It is evident from Figure No. 1, printed herein, that the genius who designed and manufactured the portable lamp illustrated did not submit it to the Hydro Laboratories, nor did it come under the eyes of the inspectors. This portable lamp is constructed with an ordinary piece of wood, evidently by the champion whittler of the town. It is provided with a tight-fitting hole in the end of the piece of wood and two single strands of cord attached to the base of the lamp base, in tantalizing proximity for a nice short circuit.

The genius who designed this did not forget to make a little swinging cover to turn over on the base of the lamp—we presume to act as a protection from shock. He entirely overlooked the fact that the whole proposition is, to the eyes of those who know better, ONE BIG SHOCK.

It is wonderful to note the utter contempt and indifference which familiarity will breed. This fixture, however, is not the only exhibition of skill and originality, and the Inspection Department has sent us another sample of the fixture art, illustrated in Figure 2. This fixture was removed from some place in St. Catha-



FIG. 1



FIG. 2

rines. It is also constructed with wood, well soaked in varnish, and wired up with strands of old code cord pulled through the wood and equipped with old-fashioned sockets minus bushings.

To some of our mutual friends who often seek ways and means of reducing expense in connection with electrical wiring we commend these beautiful samples of sub-standard material, and it is easy to imagine the joy which would be created if all these useless rules, requiring that fixtures be properly constructed and wiring properly installed, were abolished.

Suppose that these fixtures were used in an ordinary eight-roomed house, which to-day would cost somewhere around \$150 to wire and equip with plain fixtures; then think of the economic value of such designs! All the owner of the house would require would be some ordinary dressed strapping, a saw, hammer and a long gimlet, and he could make all the fixtures for the house in his spare time,

and they could be painted by his wife while he was away at the office. Then the useless methods of wiring houses in knob and tube work and service boxes could be dispensed with, and each room supplied with a neat circuit of old code No. 18 cord, fastened with double-headed carpet tacks, and when this was completed the lights would undoubtedly burn and the whole thing would not cost any more than about \$3.65 for fixtures and wiring complete.

There is no doubt about it that with such choice designs in fixtures and methods of construction, the Electrical Inspection Department are burdening the public with a lot of unnecessary expense, and, inasmuch as these fixtures were both in use in buildings which did not burn to the ground or kill anyone, it goes without saying that the methods employed were perfectly satisfactory and safe, and, therefore, electrical inspection can be abolished with impunity (?).

Rectified Currents for Resistance Measurements.



RESISTANCE—the opposition offered to the passing of an electric current—is an inherent property of all materials. In some instances the resistance is so very great that the flow of current is

reduced to negligible proportions, and these substances are termed “non-conductors.” On the other hand, many materials, chiefly metals, will permit a very considerable current to flow at a low pressure, and these are called “conductors.” It is in conductors that we are most partic-

ular to ascertain the exact value of the resistance.

When a wire is in close proximity to iron, or is shaped in the form of a coil, it is said to be "inductive," that is, any change in the value or direction of the current causes a voltage to be induced in the wire, this voltage being proportional to the rate of change of the current and existing only while the current is changing. One is inclined, therefore, to conclude that for the correct measuring of resistance, without the results being affected by the inductance, it will be necessary to use a current of constant value and constant in direction—i.e., a direct current.

Ohm's Law states that a pressure of one volt will cause a current of one ampere to flow through a resistance of one ohm.

Hence—

$$\left. \begin{array}{l} \text{Resistance} \\ \text{in ohms} \end{array} \right\} = \frac{\text{Voltage}}{\text{Current in amperes}}$$

The simplest scheme for measuring resistance is evidently to pass a direct current of known value, "I" through the unknown resistance and measure, at the same time, the voltage drop, "V."

$$\frac{V}{I} = R$$

A recent investigation in our laboratory has shown that the rectified current obtained from a group of three Tungar Rectifiers can be used with satisfactory results for the measurement of inductive resistances, and that, in so doing, the effect of inductance is eliminated, and the resistance itself measured with a high degree of accuracy

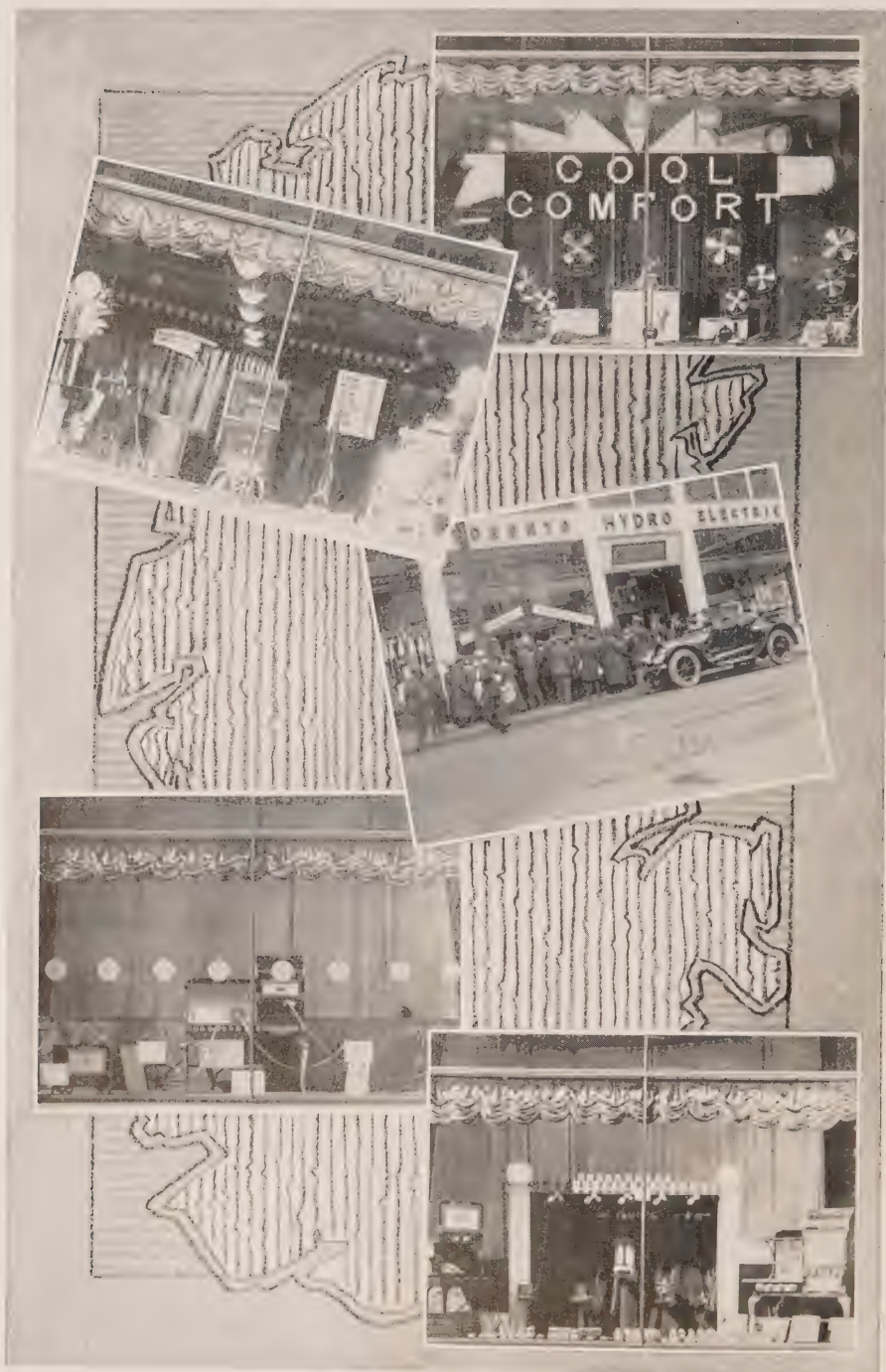
It is true that the rectified current is not of constant value from instant to instant; it contains a high frequency ripple. If we use a permanent magnet type (d.c.) of ammeter, the indication is not affected by the ripple, and the instrument indicates only the constant component of the current.

The ripple in the current wave causes a ripple in the voltage wave due to both resistance and inductance, but, again, the ripple will not show in the reading of the d.c. voltmeter. We then find that the voltage reading divided by the ammeter reading gives us the same result as when direct current is used.

Actual test showed great accuracy. In addition, it may be shown mathematically that absolute accuracy will be obtained if the ripple be symmetrical, no matter what the actual wave shape be.

This method for resistance measurement may be found useful where a source of direct current is not available out in the field. Since the Tungar Rectifier has many uses, it is quite possible that a bank of these rectifiers might be already in operation, and this new application of them may be found useful.

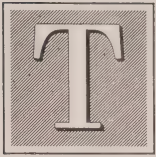
The rectified current from three Tungar Rectifiers can be used for several purposes in place of direct currents—for example, in charging storage cells, running small d.c. motors, operating d.c. relays, contactors, etc., and even for the finer work of measuring resistance.



Five excellent window displays recently made by the Toronto Hydro Shop.

Association of Municipal Electrical Engineers

Minutes of Meeting of Executive Committee, May 20, 1919



THE meeting was called to order in Room 312, Hydro-Electric Power Commission, Administration Building, at 2.30 o'clock p.m.

Those present were: Messrs. O. H. Scott, President; M. J. McHenry, Vice-President; P. B. Yates, R. H. Martindale, H. F. Shearer, and W. E. Reesor, District Vice-Presidents; S. R. A. Clement, Secretary; R. C. McCollum, Treasurer; A. T. Hicks, Chairman of a Standing Committee, being members of the Executive Committee; and T. C. James and R. T. Jeffery, members of Standing Committees.

The minutes of the previous meeting of the Executive Committee were read and approved.

A letter from Mr. T. J. Hannigan, Secretary of the Ontario Municipal Electrical Association, asking to be advised of this Association's representative on the Board of Officers of that body was read.

Moved by Mr. Reesor and seconded by Mr. McHenry:

That the President of this Association be appointed to represent it on the Board of Officers of the Ontario Municipal Electrical Association.—Carried.

A copy of a circular letter from Mr. A. O. Hunt, Assistant General Mana-

ger, Public Utilities Commission, London, in reference to the fees charged for electric meter inspection by the Inland Revenue Department, was considered.

Moved by Mr. McHenry and seconded by Mr. Shearer:

That the President appoint a Committee to enquire into the matter of fees for electric meter inspection, and report on the same at the June Convention.—Carried.

A letter from Mr. K. A. McIntyre, Chairman, the Ontario Association of Electrical Contractors and Dealers, was read. This letter asked that steps be taken to obtain closer contact between that organization and this Association, and suggested that a joint meeting be arranged of the Executive Committees of the two Associations. It also extended to this Association best wishes in the coming Convention.

The President advised that he would see Mr. McIntyre and talk the matter over with him, and also explain how time would not permit this Executive meeting with his Association on this occasion.

The Secretary then gave a report as to the membership of the Association up to the day of meeting. Dues for membership had been received from 96 Utilities, 20 of which are new members and 76 were members

during 1918. Ten Utilities who had been members during 1918 had not renewed their membership, making a net gain over 1918 of 10 Utilities.

Dues for Commercial Membership had been received from 21 companies, three of which had not been passed by the Association. One membership that had been passed at the January meeting had not been paid.

Membership cards had been issued as follows:

Class A.....	85
Class B.....	117
Associate.....	46
Commercial.....	59
—	—

Total..... 207

Moved by Mr. Yates and seconded by Mr. Martindale:

That the Secretary's report be adopted.—Carried.

The Treasurer presented the following report of the finances of the Association up to May 12th, 1919:

Balance on hand, Feb. 1st, 1919..... \$ 164.62

Received:

4 Municipalities at \$50.	\$200.00
5 Municipalities at \$25.	125.00
10 Municipalities at \$15.	150.00
14 Municipalities at \$10.	140.00
15 Municipalities at \$7.50	112.50
20 Municipalities at \$5..	100.00
24 Municipalities at \$2..	48.00
20 Commercial memberships.....	200.00

Dinner Tickets	117.00
-----	1,192.50

	\$1,357.12

Disbursements:

Stationery and	
Printing....	\$283.40
Exchange on	
Cheques....	6.30
Expenses of	
Executive....	62.65
Convention:	
Music.....	14.50
Dinner.....	187.00
Stenographer..	20.00
Lantern....	13.95
Janitor.....	5.00
-----	592.80

\$ 764.32

Moved by Mr. Reesor and seconded by Mr. Hicks:

That the Treasurer's report be adopted.—Carried.

The Treasurer called attention to certain accounts that had been paid by the Association which he did not deem to properly belong to the Association. He referred to the expenses resulting from obtaining and circulating reprints of a paper by Mr. W. B. Johnson, in reference to merchandising, that had been read at the last Convention of the Association. Although this expense was incurred on the order of the Association, yet the benefit was to the Merchandising Department of the Hydro-Electric Power Commission of Ontario, and not to the Association.

Moved by Mr. Shearer and seconded by Mr. McHenry:

That this Association ask the Merchandising Department of the

Hydro-Electric Power Commission of Ontario to assume the cost of obtaining the reprints of Mr. Johnson's paper and of circulating the same.—Carried.

Mr. Jeffery reported, on behalf of the Convention Committee, as to the preparations that had been made for the Niagara Falls Convention. The Clifton at Niagara Falls was prepared to take care of the Convention as Convention headquarters. A Convention room of ample capacity would be placed at the disposal of the Association, free of charge, in return for the privilege of serving the Convention dinner. The dinner would be on the basis of \$2.00 per person. Space is also available at the Clifton for exhibits, which could be obtained at an extra rental. A pianist could be obtained for the evening for \$8.00 and a cabaret show for \$90.00. A special speaker would also be obtained for the dinner.

Moved by Mr. Reesor and seconded by Mr. Hicks:

That those attending the Convention dinner pay \$2.00 each, the cost of the dinner, and that the Association pay the incidental expenses.—Carried.

Moved by Mr. Martindale and seconded by Mr. McHenry:

That the entertainment programme as submitted by the Convention Committee be altered so as to provide for an entertainment by Lou Skuce, instead of by a cabaret.—Carried.

Moved by Mr. Yates and seconded by Mr. Shearer:

That the commercial members be advised that space is available for exhibits, the expense of this accom-

modation to be apportioned to the exhibitors in accordance to the space occupied.—Carried.

Proposed amendments of the Constitution and By-laws as submitted by the special committee appointed for that purpose were next considered. This committee had been appointed by the President in accordance with a resolution passed at the previous meeting of the Executive, and consisted of Messrs. H. H. Couzens (Chairman), E. V. Buchanan, L. G. Ireland, R. T. Jeffery and S. R. A. Clement.

Moved by Mr. Yates and seconded by Mr. Hicks:

That the name of this Association be changed to "Association of Municipal Electrical Utilities (of Ontario)."—Carried.

The following proposed amendments were approved for submission to the Association at its June Convention:

Clause (c).

Delete from first sentence "and only one such delegate from each municipality will be permitted."

Insert: "Utilities shall be entitled Class 'A' representation in accordance with the following schedule, based upon the number of electrical consumers at the end of the previous calendar year."

Less than 1,000 consumers—1 Class "A" delegate.

1,001 to 2,000 consumers—2 Class "A" delegates.

2,001 to 3,000 consumers—3 Class "A" delegates.

3,001 to 5,000 consumers—4 Class "A" delegates.

5,001 to 10,000 consumers—5 Class "A" delegates.

Over 10,000 consumers—6 Class "A" delegates.

Clause 2.

Change clause to read:

"Persons not eligible for either of the former two classes, but who are interested in the objects and aims of the Association, may be elected as Associates by a two-thirds vote of the Executive Committee present at any Executive meeting of the Association, which election shall be subject to the approval of the Association at a general meeting; or may be elected by the Association by a two-thirds vote of the Class 'A' delegates present at any general meeting of the Association."

Clause 3.

Change last two lines to read:

"vote of the Executive Committee present at any Executive meeting of the Association subject to the approval of the Association at a general meeting; or may be elected by the Association at a two-thirds vote of the Class 'A' delegates present at any general meeting of the Association."

Clause 4 (a).

Insert after the word "rights," third line, the words "in person or by proxy."

Clause 4 (d).

Add to end of this clause:

"except as members of standing committees."

Clause 6 (b).

Change this clause to read:

"A quorum for the purpose of transacting business at a general meeting of the Association shall

Clause 6 (c).

Change the word "legal" in the last line to "general," and add the following sentence.

"All motions shall be presented in writing, signed by the mover and seconder."

Add new clause 6 (e):

"Parliamentary procedure shall be followed at all general and executive meetings of the Association."

Clause 7 (b).

Change this clause as follows:

"4. Regulations and Standards Committee."

Clause 7 (b).

Delete word "large" at end of clause and add "a general meeting."

Clause 7 (c).

Insert after the word "officers" the words "and the past President."

Clause 7 (e).

Add to this clause another sentence:

"It will also reimburse the members of Standing Committees and Committees appointed for special purposes, for the amount of their railway expenses due to attending meetings of those Committees."

Clauses 8 (a), (b), (c) and (d).

Delete clauses.

Insert the following:

(a) The President, at an Executive Committee Meeting, held during October, shall appoint, subject to the approval of the Executive, three Associates, to constitute the Committee of Tellers.

(b) During the first week in November of each year, the Secretary shall mail or deliver to each Class "A" delegate in good standing, a form showing the offices to be filled at the ensuing annual election in January, viz.: President, Vice-President, five District Vice-Presidents, Secretary, Treasurer, and five Committee members for each of the

Standing Committees (Papers Committee, Convention Committee, and Regulations and Standards Committee), and containing the names of the incumbents, with the request that nominations be made for the various offices to be filled. A printed list of the membership in the various classes shall accompany this form. Nominations shall not be signed. Each shall be enclosed in an envelope addressed to the Secretary and identified by the name of the sender, and mailed prior to December 1st.

(c) The nomination ballots shall be counted by the Committee of Tellers who will report to the Executive Committee at its meeting to be held during December, after eliminating the names of all nominees who have received less than three per cent. of the nominating votes. Should a nominee appear as candidate for more than one office, his name shall be placed on the ballot as candidate for the office for which he shall elect to stand. From the list of nominees to be placed on the ballot the Executive shall select a complete ticket consisting of those it deems best suited for the offices to be filled. These nominees shall be known as the "Executive Nominees," and shall be suitably designated on the ballot. Any nominee may, prior to the printing of the ballots, withdraw his name by written request to the Secretary.

(d) The voting for each office shall be restricted to the nominees for that office as printed on the ballot. The ballot, together with an envelope on which shall be printed the name of the Association, the name and ad-

dress of the Secretary, and space for the voter's name, shall be mailed by the Secretary to each Class "A" delegate not later than January 15th. All names voted shall be marked on a single ticket and enclosed in an envelope marked "Official Voting Envelope" (received from the Secretary). This shall be enclosed in the outer envelope identified by the name of the sender, and mailed so as to reach the Secretary on or before January 25th.

(e) The Committee of Tellers shall meet as soon after January 25th as possible, and shall receive unopened all ballots from the Secretary. It shall forthwith proceed, in secret, to count the vote, and shall prepare and sign, in duplicate, a report of the results of the vote, one copy of which will be retained by the Chairman of the Committee and the other filed with the Secretary. The President shall cause the report to be read during the first session of the first general meeting held in each calendar year.

Clause 9 (c).


Delete the words "in proper form" from the third line and insert "certified by two auditors to be elected by the Association at the first general meeting in each year."

Clause 10.

Revise this clause to read:

"The transactions of the Association shall be edited by the Secretary and published . . . Association."

The meeting adjourned at 4.30 o'clock p.m.



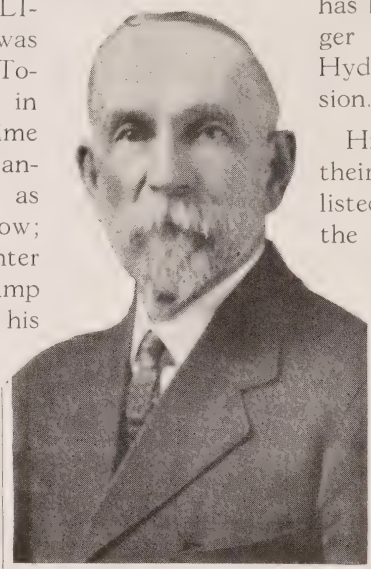
WHO'S WHO *in* HYDRO?



S J. MILLIKIN was born in Toronto, in the time when candles were as common as electric lamps are now; the street lamp lighter rushed from one lamp post to another with his "lighter, "like a "Will o' the Wisp." Kerosene came as a most wonderful discovery, and extinguished the candle, and it, in its turn, is superseded by the electric lamp, so he has had some experience in the lighting problems of his day.

His school days were spent at the old "Park" and the Victoria Street Schools, Toronto; later he attended the Grammar School, Barrie.

He was engaged in the lumber business in its different branches for many years, and for the last ten years



S. J. Milliken

has been Secretary-Manager for the Midland Hydro-Electric Commission.

His four sons answered their country's call and enlisted. One of them paid the supreme sacrifice, "somewhere in France," in 1916; another was wounded at Vimy Ridge. He also has one daughter.

Midland claims the distinction of being the first place in the Province of Ontario to have used electric light (about 40 years

ago). Of this he may have something to say in a later issue of THE BULLETIN.

Midland also has the distinction of being the first town outside of the Niagara District to use electric current purchased from the Hydro-Electric Power Commission, which was in July, 1910.





Sales Development

Toronto, Ont., April 2, 1919.
 S. R. A. Clement, Esq.,
 Secretary, Association of Municipal
 Electrical Engineers.
 190 University Avenue,
 Toronto.

Dear Mr. Clement:

I wish to thank you for yours of recent date with enclosure of the reprint of Mr. Johnson's paper, with the discussion on same, at the convention held by your Association in Toronto on January 30th.

I have read this paper with a great deal of interest, and am heartily in accord with the principles laid down in the handling of appliances and supplies, and maintaining a standard price as established by the manufacturer.

I am at the present time installing in my business here at the Walker House, in our Cafeteria Department, several units of electrical equipment as manufactured by the Moffat Stove Company, and intend to give them a thorough test out. I am giving demonstrations of this electrical equipment as compared with equipment operated by gas and coal. Miss Reilly, the head dietitian in charge of the Hart House, who is handling equipment in all the Government

Institutions here in Toronto, was very much impressed and interested in this class of equipment in all their institutions.

There is a wonderful field for development of the sale of appliances of all kinds, and our Commission realizes its responsibility in pushing the sale of appliances by demonstration, and also by interesting our sales forces in the System here in Toronto, in the necessity of pushing the sale of these appliances to the limit. Within the last month we have been able to show a substantial increase over the same month a year ago.

Again thanking you, I beg to remain,

Yours truly,

(Signed) GEORGE WRIGHT,
 Commissioner, Toronto Hydro-
 Electric System.

~~~~~  
 (COPY)

PICTON PUBLIC UTILITIES

William Tait, Superintendent.

Picton, Ont.

HYDRO DEMONSTRATION  
 AT PICTON

March 6th, Hydro was turned on in our town, and the same day was the beginning of a three days' electrical demonstration and sale.



The merchandizing representative of Hydro arranged for many demonstrations of the leading electrical concerns to assist in the display.

The brilliant array of one, two and three-light fixtures adorned the white metallic ceiling. On either side the electrical ranges, percolators, etc., were giving forth appetizing odors of many choice delicacies. The loaded shelves of toasters, irons, etc., blended together harmoniously by the many colored silk-shaded reading lamps, lent a very attractive appearance. The pleasing hum of the electric vacuum and the soothing sway of the washer made people ready to come back and buy a churn without a dasher.

The crowded attendance showed the public appreciation of this event, and the increased business transacted marks a splendid beginning for an ever-increasing trade.

We wish to extend our sincere thanks to all concerned, and would be pleased to hear of other town progressing along the same lines.

Yours for business,  
(Signed) WILLIAM TAIT,  
Superintendent.

No man is fit to win who has not sat down alone to think and who has not come forth with purpose in his eye, with set lips and clenched palms, able to say "I am resolved what to do."—BULWER.

(COPY)

## SARNIA HYDRO-ELECTRIC SYSTEM

Sarnia, Ont., April 2, 1919.  
Hydro-Electric Power Commission of  
Ontario,

F. A. Gaby, Chief Engineer,  
Toronto, Ont.

Atten. J. F. S. Madden, Sales Engineer.

Dear Sir:—

I beg to acknowledge receipt of your letter of March 26th, giving details of Hydro lamps manufactured, setting forth that these lamps are manufactured in Holland, and showing the source from which the manufacturers of the Hydro lamps obtain their raw material for same. I can assure you that I appreciate very much having this information, as it has been told to the writer more than once that these lamps were manufactured and purchased from enemy sources.

I remain,

Yours very truly,

(Signed) J. E. B. PHELPS,

Manager.

THE LONDON PUBLIC Utilities Commission reported recently of having taken down four 1000-watt nitrogen lamps which had each burned slightly over 18,000 hours. This is a surprising record of long-life burning.

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# HYDRO NEWS ITEMS

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## St. Lawrence System

Power was turned on at the Cornwall High Tension Station on April 29th. The system is now receiving all the power from this station. The private plant at Iroquois formerly serving the system has been disconnected.

Requests for a supply of power have been made by the town of Alexandria and the Village of Lancaster. It is proposed to serve these municipalities from the St. Lawrence System. Investigations are now being made to determine the most feasible way of meeting the needs of the district surrounding the municipalities.

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## Rideau System

The line from Perth to High Falls has been completed. A temporary transformer station has been installed at High Falls to supply power for construction purposes.

The new unit of the Rideau Power Company of Merrickville was put in operation on May 3d, and the load on the system has been increased so that two additional blocks of power are required immediately.

The municipality of Carleton Place took over the private plant of H. Brown & Sons on May 1st. The generating station in this town is turned over to the Commission, and is now under its control. The distributing system is retained by the town, and a local commission has taken control of it. Hereafter it will be known as the Public Utilities of Carleton Place, and will control the waterworks. Mr. H. M. Miller, formerly of St. Mary's, has been engaged by the municipality as manager. He will take office about May 26th.

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## Prince Edward County

WELLINGTON.—A modern 4,000-volt distribution system is being constructed by the local commission to replace the 250-volt D.C. system formerly owned by the W. P. Niles Seed Company.

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PICTON.—The local commission proposes to secure more suitable quarters for the offices and showrooms of the Public Utilities, where all the activities of the department will be carried on with maximum efficiency.

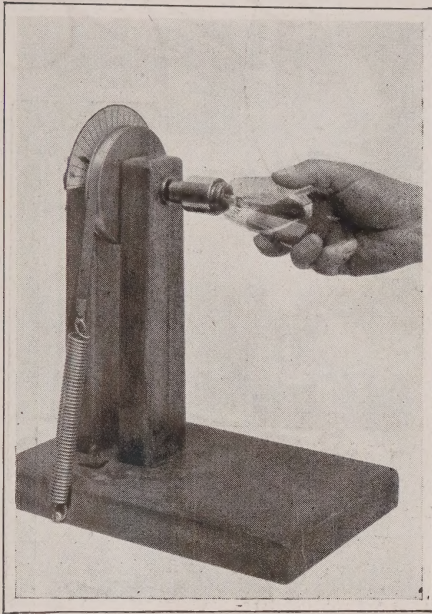




Cameron's Falls—Site of the proposed development

## Lamp Base Tests

Shown in the accompanying picture is the Laboratories' method of testing lamps for loose bases.



Instrument used by the Hydro Laboratories for testing lamp bases

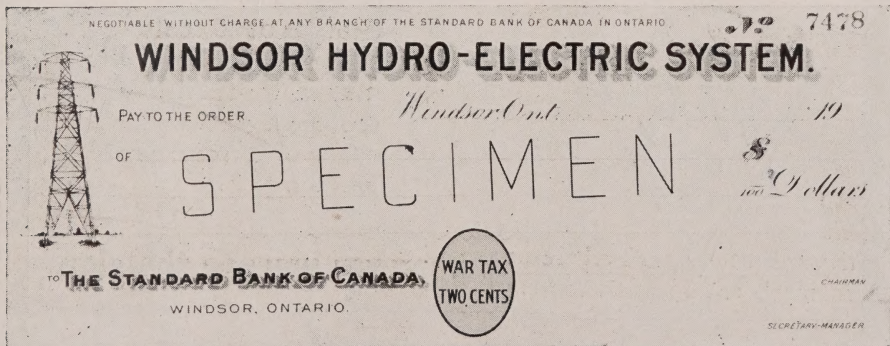
The instrument shown consists of a socket keyed to the shaft into which the lamp is screwed. After the lamp base is screwed in as far as it

will go, further rotative motion is resisted by a steel spring. A pointer is fastened to the shaft, and this passes over a graduated scale, which is calibrated to indicate the force supplied in pounds-feet.

The scale was calibrated by securing a groove pulley to the socket. A cord was fastened to the pulley and weights were applied to the end of the cord, the pounds-feet being calculated from the radius of the pulley and the weight.

After some weeks' experience with the use of this instrument in testing, the Laboratories have adopted 6 pounds-feet as the standard torque.

HUNTSVILLE. — The waterworks plant at Huntsville was originally installed in 1896 and 1897. Additions have been made from time to time, particularly in 1901, to such an extent that book values were generally considered indefinite and inaccurate. With the idea of securing an up-to-date record of conditions, the municipality has instructed the Hydro-Electric Power Commission to make a valuation. Last year a similar valuation was made for the municipality of Woodstock.



Attractive form of cheque used by the Windsor Hydro-Electric System.  
This sort of individuality pays well.





## 3 of the Advantages of War-Savings Stamps

- (1) You become a shareholder in your country when you invest in War-Saving Stamps, costing \$4.03 each this month, and redeemed by the Dominion of Canada for \$5.00 each in 1924.
- (2) You can register one or more War-Savings Stamps on a Certificate at any Post Office. This protects you against loss by fire, theft, or other cause. There is no charge for Registration,
- (3) You can make your quarters help by buying Thrift Stamps at 25 cents each. Sixteen Thrift Stamps affixed to a Thrift Card represent \$4.00 in the purchase of a War-Savings Stamp.



~~~~~  
Sold wherever you see the sign
~~~~~



# Hydro Municipalities

## NIAGARA SYSTEM

| 25 Cycles                 | Pop.    |
|---------------------------|---------|
| Acton .....               | 1,570   |
| Ailsa Craig .....         | 462     |
| Ancaster .....            | 400     |
| Ancaster Township .....   | 4,577   |
| Aylmer .....              | 2,119   |
| Ayr .....                 | 780     |
| Baden .....               | 710     |
| Barton Township .....     | 6,061   |
| Beachville .....          | 503     |
| Biddulph Township .....   | 1,750   |
| Blenheim .....            | 1,257   |
| Bolton .....              | 727     |
| Bothwell .....            | 695     |
| Brampton .....            | 4,023   |
| Brantford .....           | 26,601  |
| Brantford Township .....  | 7,739   |
| Breslau .....             | 500     |
| Bridges .....             | 400     |
| Burford .....             | 700     |
| Burford Township .....    | 3,882   |
| Burgessville .....        | 300     |
| Caledonia .....           | 1,236   |
| Chatham .....             | 13,943  |
| Chippewa .....            | 707     |
| Clinton .....             | 1,981   |
| Comber .....              | 800     |
| Dashwood .....            | 350     |
| Delaware .....            | 350     |
| Dereham Township .....    | 3,176   |
| Dorchester .....          | 400     |
| Dorchester S. Ty. ....    | 1,457   |
| Drayton .....             | 613     |
| Dresden .....             | 1,403   |
| Drumbo .....              | 400     |
| Dublin .....              | 218     |
| Dundas .....              | 4,834   |
| Dunnville .....           | 3,286   |
| Dutton .....              | 840     |
| Elmira .....              | 2,065   |
| Elora .....               | 1,005   |
| Embro .....               | 472     |
| Etoicoke Township .....   | 5,822   |
| Exeter .....              | 1,504   |
| Fergus .....              | 1,679   |
| Flamborough E. Tp. ....   | 2,229   |
| Forest .....              | 1,421   |
| Galt .....                | 11,920  |
| Georgetown .....          | 1,654   |
| Goderich .....            | 4,553   |
| Grantham Township .....   | 3,133   |
| Granton .....             | 300     |
| Guelph .....              | 16,022  |
| Hagersville .....         | 1,053   |
| Hamilton .....            | 104,491 |
| Harriston .....           | 1,563   |
| Hensall .....             | 717     |
| Hespeler .....            | 2,857   |
| Highgate .....            | 427     |
| Ingersoll .....           | 5,300   |
| Kitchener .....           | 19,380  |
| Lambeth .....             | 230     |
| Listowel .....            | 2,291   |
| London .....              | 57,301  |
| London Township .....     | 6,024   |
| Louth Township .....      | 2,212   |
| Lucan .....               | 643     |
| Lynden .....              | 662     |
| Markham .....             | 909     |
| Merriton .....            | 1,670   |
| Milton .....              | 1,947   |
| Milverton .....           | 929     |
| Mimico .....              | 2,004   |
| Mitchell .....            | 1,656   |
| Moorefield .....          | 335     |
| Mount Brydges .....       | 500     |
| New Hamburg .....         | 1,398   |
| New Toronto .....         | 1,423   |
| Niagara Falls .....       | 11,715  |
| Niagara-on-the-Lake ..... | 1,318   |
| Norwich .....             | 1,093   |
| Norwich N. Township ..... | 2,029   |
| Norwich S. Township ..... | 1,907   |
| Oil Springs .....         | 537     |
| Otterville .....          | 500     |
| Palmerston .....          | 1,843   |
| Paris .....               | 4,437   |
| Petrolia .....            | 3,047   |
| Plattsville .....         | 550     |
| Point Edward .....        | 937     |

|                            |         |
|----------------------------|---------|
| Port Credit .....          | 1,179   |
| Port Dalhousie .....       | 1,318   |
| Port Stanley .....         | 831     |
| Preston .....              | 4,949   |
| Princeton .....            | 600     |
| Ridgetown .....            | 2,080   |
| Rockwood .....             | 650     |
| Rodney .....               | 626     |
| Sandwich .....             | 3,077   |
| Sarnia .....               | 12,323  |
| Scarborough Township ..... | 5,525   |
| Seaforth .....             | 2,075   |
| Simcoe .....               | 4,032   |
| Springfield .....          | 422     |
| St. Catharines .....       | 17,977  |
| St. George .....           | 600     |
| St. Jacobs .....           | 400     |
| St. Mary's .....           | 3,960   |
| St. Thomas .....           | 17,216  |
| Stamford Township .....    | 3,418   |
| Stratford .....            | 17,371  |
| Strathroy .....            | 2,816   |
| Streetsville .....         | 500     |
| Tavistock .....            | 974     |
| Thamesford .....           | 504     |
| Thamesville .....          | 742     |
| Thorndale .....            | 250     |
| Tilbury .....              | 1,605   |
| Tillsonburg .....          | 3,059   |
| Toronto .....              | 460,526 |
| Toronto Township .....     | 5,098   |
| Townsend Township .....    | 3,263   |
| Vaughan Township .....     | 4,059   |
| Walkerville .....          | 5,349   |
| Wallaceburg .....          | 4,107   |
| Waterdown .....            | 696     |
| Waterford .....            | 1,027   |
| Waterloo .....             | 5,091   |
| Waterloo Township .....    | 6,538   |
| Watford .....              | 1,175   |
| Welland .....              | 7,905   |
| West Lorne .....           | 708     |
| Wellesley .....            | 583     |
| Weston .....               | 2,283   |
| Windsor .....              | 26,524  |
| Woodbridge .....           | 615     |
| Woodstock .....            | 10,004  |
| Wyoming .....              | 576     |
| Zurich .....               | 450     |

Total 1,060,915

## SEVERN SYSTEM

| 60 Cycles             |       |
|-----------------------|-------|
| Alliston .....        | 1,237 |
| Barrie .....          | 8,866 |
| Beeton .....          | 588   |
| Bradford .....        | 946   |
| Coldwater .....       | 617   |
| Collingwood .....     | 7,010 |
| Cookstown .....       | 635   |
| Creemore .....        | 599   |
| Elmvale .....         | 775   |
| Midland .....         | 7,109 |
| Orillia .....         | 7,448 |
| Penetang .....        | 3,672 |
| Port McNichol .....   | 500   |
| Stayner .....         | 990   |
| Thornton .....        | 250   |
| Tottenham .....       | 557   |
| Victoria Harbor ..... | 1,542 |
| Waubaushene .....     | 600   |

Total 41,941

## WASDELL'S SYSTEM

| 60 Cycles        |     |
|------------------|-----|
| Beaverton .....  | 821 |
| Brechin .....    | 215 |
| Cannington ..... | 746 |
| Sunderland ..... | 570 |
| Woodville .....  | 357 |

Total 2,709

## NIPISSING SYSTEM

| 60 Cycles       |       |
|-----------------|-------|
| Callander ..... | 650   |
| Nipissing ..... | 400   |
| North Bay ..... | 9,651 |
| Powassan .....  | 572   |

Total 11,273

## MUSKOKA SYSTEM

| 60 Cycles         | Pop.  |
|-------------------|-------|
| Gravenhurst ..... | 1,600 |
| Huntsville .....  | 2,135 |

Total 3,735

## EUGENIA SYSTEM

| 60 Cycles                |        |
|--------------------------|--------|
| Alton .....              | 700    |
| Artemesia Township ..... | 2,396  |
| Arthur .....             | 1,003  |
| Chatsworth .....         | 286    |
| Chesley .....            | 1,860  |
| Dundalk .....            | 750    |
| Durham .....             | 1,520  |
| Elmwood .....            | 500    |
| Flesherton .....         | 428    |
| Grand Valley .....       | 586    |
| Hanover .....            | 3,310  |
| Holstein .....           | 285    |
| Horning's Mills .....    | 30     |
| Markdale .....           | 904    |
| Mount Forest .....       | 1,871  |
| Neustadt .....           | 470    |
| Orangeville .....        | 2,381  |
| Owen Sound .....         | 11,819 |
| Shelburne .....          | 1,018  |
| Tara .....               | 620    |

Total 33,057

## OTTAWA SYSTEM

| 60 Cycles    |         |
|--------------|---------|
| Ottawa ..... | 100,561 |

## PORT ARTHUR SYSTEM

| 60 Cycles         |        |
|-------------------|--------|
| Port Arthur ..... | 15,224 |

## CENTRAL ONTARIO SYSTEM

| 60 Cycles         |        |
|-------------------|--------|
| Belleville .....  | 12,080 |
| Bowmanville ..... | 3,545  |
| Brighton .....    | 1,278  |
| Cobourg .....     | 4,457  |
| Colborne .....    | 811    |
| Deseronto .....   | 2,061  |
| Kingston .....    | 22,265 |
| Lindsay .....     | 7,752  |
| Madoc .....       | 1,114  |
| Millbrook .....   | 746    |
| Napanee .....     | 2,881  |
| Newburgh .....    | 444    |
| Newcastle .....   | 690    |
| Onemece .....     | 446    |
| Orono .....       | 700    |
| Oshawa .....      | 8,812  |
| Peterboro .....   | 19,816 |
| Port Hope .....   | 4,486  |
| Stirling .....    | 823    |
| Trenton .....     | 5,169  |
| Tweed .....       | 1,350  |
| Whitby .....      | 2,902  |

Total 104,538

## ST. LAWRENCE SYSTEM

| 60 Cycles          |       |
|--------------------|-------|
| Brockville .....   | 9,473 |
| Chesterville ..... | 868   |
| Prescott .....     | 2,630 |
| Williamsburg ..... | 100   |
| Winchester .....   | 1,042 |

Total 14,113

## RIDEAU SYSTEM

| 60 Cycles           |       |
|---------------------|-------|
| Perth .....         | 3,358 |
| Smith's Falls ..... | 6,115 |

Total 9,473

## ESSEX COUNTY SYSTEM

| 60 Cycles          |       |
|--------------------|-------|
| Amherstburg .....  | 1,990 |
| Canard River ..... | 50    |
| Cottam .....       | 100   |
| Essex .....        | 1,429 |
| Harrow .....       | 375   |
| Kingsville .....   | 1,633 |
| Leamington .....   | 3,604 |

Total 9,181



THE aim of the  
Bulletin is to  
provide municipalities  
with a source of infor-  
mation regarding the  
activities of the Com-  
mission; to provide a  
medium through which  
matters of common  
interest may be  
discussed, and to  
promote a spirit of  
co-operation between  
Hyaro Municipalities.